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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/266,202 | 03/10/1999 | HARIKLIA DRIS REITZ | 2950.08US02 | 5465 |

62274 7590 10/09/2007
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| EXAMINER |
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LEE, KYUNG S

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| ART UNIT | PAPER NUMBER |
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2832

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10/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/266,202

Applicant(s)

REITZ ET AL.

Examiner

K. Richard Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-9 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-9 and 25-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-9, and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. US Pat. 5,699,035 in view of Mitchnick et al. US Pat. 5,512,812.

Ito teaches a collection of particle in a powder comprising crystalline zinc oxide (col. 2, lines 33-34) and the collection of particles having an average diameter of about 10 to 300nm.

Ito teaches the claimed invention except for the distribution of particle size such that at least 95% of the particles have a diameter greater than about 40 percent of the average diameter and less than about 160 percent of the average diameter.

Mitchnick teaches zinc particles having an average diameter of 10 to 150nm and 90 percent of the particles have homogenous size (col. 6, lines 15-18). Further, Mitchnick teaches that particle sizes less than 150nm in diameter provide higher conductivity by virtue of greater area for inter-particle contact (col. 14, lines 1-3). It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the zinc oxide particles as taught by Mitchnick in the varistor device of Ito since zinc oxide particles having sizes less than 150nm in diameter provide higher conductivity by virtue of greater area for inter-particle contact.

Regarding the limitation "the distribution of particle size such that at least 95% ..." Mitchnick is interested in having better conductivity in size and quality of zinc oxide particles

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used. Mitchnick employs zinc oxide particles having 90% homogenous size (col. 10, line 30).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to opt for increasing the conductivity and/or lowering by adjusting the distribution of particle sizes.

Regarding claims 2 and 3, Ito teaches a particle diameter of 10 to 150nm and meets the claimed sizes.

Regarding claims 4-5 and 25, Mitchnick discloses zinc oxide particles having 90% homogenous size (col. 10, line 30).

Regarding claims 7-9, Ito teaches a ZnO varistor device (abstract).

Regarding claim 26, Mitchnick teaches an aspect ratio (major axis/minor axis) of about two (col. 2, line 32).

Regarding claims 27, 28 and 30, Ito teaches that zinc oxide particles are doped (col. 2, lines 55-60) with, for example bismuth or cobalt.

Regarding claim 29, Ito teaches a crystal zinc oxide structure (col. 2, line 32).

Response to Arguments

3. Applicant's arguments with respect to claim 1-5, 7-9 and 25-30 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Richard Lee whose telephone number is (571) 272-1994. The examiner can normally be reached on M and W-F from 5:30 AM to 4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


K. Richard Lee 9/30/07
Primary Examiner
USPTO